

might be thought by the possessor, may contribute to the end we seek. Mr. Hudson's valuable barometrical observations on board the Hope Floating Light, I have alluded to at p. 589; and I may state here, that those of the Hurricane of October, 1832, quoted by Col. Reid p. 269, as taken at Chandernagore, are my own; and both prove to be of far more utility than was at the time supposed by the observers. We may indeed, if allowed to speak metaphorically on such a subject, say, that as the great pyramids of human knowledge must be built of separate stones, no man can say, before he brings his to the builder, that it may not become "the head stone of the corner!"

ART. III.—*Extracts from Mr. M' Clelland's paper on Indian Cyprinidæ. As. Res. Vol. xix. Part II.*

For such of our readers as do not subscribe to the *Researches* of the Society, we take this opportunity of extracting such parts of the 2nd part of the 19th vol. just published, as may be separated, without disadvantage from the rest of Mr. M' Clelland's paper. The utility of Ichthyology is set forth in the following remarks.

"Utility will always be found to depend more on the degree of attention paid to any subject connected with science, than on the nature of the subject itself; yet it is a common remark that this, or that, is important or frivolous, according as we happen to be acquainted with it. When we find any branch of science regarded as useless, we may be assured that, contrary to ordinary expectation, it will prove the most productive field we can enter. Science, indeed, can only be useful where it has been cultivated, and its principles worked out; practical results will then follow in proportion to the pains taken to develop them.

"The moral interest of Ichthyology having been sufficiently attended to throughout the preceding paper, I shall here pass it over, merely remarking, that in common with other branches of natural science it is calculated to improve the mind as well as the condition of society, while its cultivation need not interfere with any duty, public or private; and few who are placed on our coasts, or on the banks of any of the noble rivers of India, who might not with amusement to themselves, and advantage to science, communicate many observations no-

where else to be collected regarding our indigenous species. The season of spawning, and places to which the various species resort for this purpose—their food—the kind of waters in which they thrive best—whether running or stagnant—with sandy or with muddy bottoms,—would all be points of great interest that might be settled by persons of no pretensions to a scientific knowledge of the subject.

“With regard to the propagation of fishes, Mr. Yarrell remarks—that an acre of water will let in many parts of the continent, where fresh water fishes are in more request than in England, for more than an acre of land. In no part of the continent of Europe, however, can fresh-water fish be of so much importance as in India, where most of the domestic animals which in Europe afford the principal food, as the ox, swine, poultry, &c. are rejected by a large proportion of the people.

“Throughout the Mysore country, as well as in many of the western provinces, large tanks or reservoirs occur, many of them from three to thirty miles in circumference, and being indispensable for irrigation, may be supposed to be nearly universal in all populous districts not watered by rivers. These reservoirs are considered by the Hon’ble Colonel Morison C. B.* as among the greatest national monuments to be found in India.

“They are capable, according to Buchanan,† of supplying water for from eighteen months to two years, and thus of maintaining the surrounding crops should no rain fall within that period.

“They are drained by an ingenious system of sluices and aqueducts of the most simple, but complete construction, which afford a perfect control over the distribution of the water. During the dry season they are all pretty much exhausted, and may, if necessary for repairs, be left perfectly dry. This would afford an excellent opportunity for destroying crocodiles and all the various destructive fishes, sparing only the more profitable kinds, which are limited to two or three species only; and by repeating this operation for several seasons, or as often as may be necessary, all but those we wish to propagate would soon be exterminated.

“By a wise law of nature, the carnivorous animals of every class are less prolific than the harmless, and may therefore be the more easily subdued. Nearly all the destructive fishes are viviparous, bringing

* To whom I am indebted for many particulars regarding them.

† See his *Journey in Mysore*.

forth comparatively few young ; whereas, the more profitable kinds, or those which should be the object of our care, are all oviparous, and bring forth their young from spawn.

“ A single female Carp weighing only nine pounds has been found by Bloch to contain no less than six hundred thousand ova ; and by Schneider, one, ten pounds weight, was found to contain seven hundred thousand ova, or eggs.

“ The fecundity of the *Ruee*, *Catla*, and *Mrigala*, has not yet been ascertained, but from their close affinity to the Carp we may suppose them to correspond in this respect with that species ; the question however, is one that may be easily ascertained by weighing a grain of the roe and ascertaining the number of globules it contains, while these will be to the whole roe what one grain is to its entire weight. The result will show that these species are capable of yielding, by their extraordinary fertility, a source of food as inexhaustible as the sands of the ocean, could we only bring their propagation and the safety of the young sufficiently within our control.

“ In the reservoirs above described, we have every facility for effecting this object on a scale of great magnitude, without in any way interfering with the other uses of the water.

“ There are certain kinds which though they cannot be said to be carnivorous, would yet be still more fatal to our object by devouring the spawn or ova, such are the Barbels, common in the higher parts of our rivers, and which but for a knowledge of this trait in their character would, from their appearance and flavour, be the first we should recommend for propagation, and thus from an ignorance of one simple fact, destroy every chance of success. We should not, however, condemn all the Barbels merely from a fault in some of the species, the circumstance should impress on our minds the necessity of confining the varieties of fish in a single reservoir to the lowest possible number of herbivorous kinds, such as the three I have mentioned, namely, *Cyprinus rohita*, Buch. *Cyprinus catla*, id. and *Cyprinus mrigala*, id. ; there is reason to believe that either of these species would answer equally well in any part of the plains of India. As they usually attain a large size, they may be slow in coming to perfection, and, therefore, instead of having these three large species in the same water, it would probably answer the purpose better to have one of them only as a principal species, with any one of the common Gudgeons or Bangons of India as a cheaper article, which would

not require more than a year or two at the utmost to arrive at perfection. Beyond a single species of *Gobio*, and a single one of the larger species already mentioned, more ought not to be introduced to the same water, or allowed to exist in it, from the danger of their proving inimical to each other, a point which I presume has never been attended to sufficiently in attempts hitherto made to propagate fishes; hence, perhaps, the want of that degree of success which no doubt would have rendered a practice so simple and beneficial, long since universal.

“The only alteration in the present form of the reservoirs, to adapt them to the purposes in view, would be to enclose the lowest portions of the bottom of each with stakes long enough to reach above the highest surface of the water, and close enough together to prevent the entrance of crocodiles, otters, and the like, should any such exist in the neighborhood. The spawning season of the *Ruce* and other *Cirrhins*, appears to be in the dry weather; the contrivance here suggested would therefore protect them at that time, and if there should be any danger of the whole of the water drying up, wells of sufficient size and depth might be formed within the enclosure, to which the fishes would retire during droughts, while the shallow waters around the wells would afford space enough for the deposit of spawn.

“Much of our success would depend on keeping these enclosures as free as possible from all but the species we desire to propagate. At the commencement of the dry season, before the fish begin to enter the enclosure, the interval between the stakes might be closed with straw, and as the water becomes sufficiently low without, most of the rapacious kinds may be removed or destroyed; none should be allowed to remain, but that species alone which may be the object of our care. This done, the only further attention necessary, would be to save the fish in the enclosure from birds during the remainder of the dry season.

“Should our success be complete, from every moderately sized female *Ruce* we should have on the commencement of the rains from five to ten hundred thousand fry, which, as the waters rise would be quite able to take care of themselves till the next season, when it would be necessary again to destroy the rapacious kinds, as before.

“The repair of the *carays** of Mysore, is said by Buchanan, to be

* Such is the name by which the reservoirs are known in Southern India when kept up for irrigation.

attended with considerable expense, nevertheless it is understood to be an indispensable object to have them in perfect repair, since the fertility of the country depends entirely on them. The plan here proposed of converting them to new purposes of utility would add to their importance, and the interest of keeping them up, without in any way increasing their expense.

“On the fishes of Bengal, Assam, and other provinces subject to the inundations of the larger rivers, we can exercise no control, nor is it desirable that we should, even if it were in our power, the supply of fish being plentiful and constant enough: but in the higher parts of the plains, near the foot of the mountains where the larger Cirrhins and Barbels retire during the dry season for the purpose of spawning, fisheries might be carried on with advantage to a considerable extent.

“It would here be out of place to enter on the subject of sea fisheries, and before we could do so with advantage it would be necessary to pay as much attention, or more, to the fishes of our coasts as we have devoted to those of our rivers.

“Already we have attained one important piece of information regarding the value of the *Sulea* fish of our estuaries, *Polynemus sele*, Buch., which from the earliest times has been celebrated throughout China for its isinglass. This substance was formerly supposed to be afforded only by certain fishes in the rivers of Muscovy, from whence it was exported to all parts of Europe, where, from its high price, its use is chiefly confined to the arts.

“A solution of this substance mixed with Canadian balsam and spread on black silk forms the useful article called court plaster. A few grains of isinglass boiled in milk forms a most nutritious food, which is given medicinally.

“Ignorant of its abundance in certain fishes of the Hoogly, that used by the English residents in India is still imported, probably at an expense of about 800 Rs. per maund,* while the same thing is collected in abundance and shipped to China from the Calcutta river.†

“Ten grains of this substance is sufficient to give the consistency of jelly to a pint of water, and as it keeps good in a dry state for any length of time, we may imagine its value as a portable food, and what its importance might be in times of scarcity, since one pound avoird-

* It is retailed in Calcutta at a much higher rate.

† See Journal of the Asiatic Society for March, 1839.

dupois, at the above rate, would afford a nutritious meal to 1560 persons.

“ Whether it be used in times of scarcity in China I do not know, but probably it is collected and stored to meet such occasions, since Dr. Lumqua—an honorary member of this Society—a Chinese Physician, long resident in this city informs me that the Bengal *fish-sago* procured from *Polynemus sele*, Buch. is known throughout the empire, and that nothing could surpass his surprise on his arrival nearly twenty-five years ago in Calcutta, when he found that with the exception of his own countrymen who carried on the trade, no one appeared to know or care anything whatever for the article in question, and as no one could describe the fish, the same ignorance continued up to within the last few months to prevail on the subject. The advantage, however inconceivable, of an abundant supply of any substance, a single maund of which would afford a nutritious meal to upwards of one hundred thousand persons, could only be felt occasionally, but the intrinsic value of the article in all the common conveniencies of life, is eminently calculated to direct attention to other uses of the species affording it.

“ This is one of the largest and finest fishes, both as regards flavour and wholesomeness, on our coasts or in our rivers, while the season at which it is taken is the one most favourable for a residence in boats or ships in the Sunderbuns. Under these circumstances it is not likely that the subject of sea fisheries in this quarter will be altogether overlooked, longer than the circumstances on which their success must depend shall have been properly examined.

“ All sea fisheries are practised on migratory species, which advance annually at stated periods in search of food and proper situations to deposit their spawn. Their progress is so regulated that at certain seasons they approach the different coasts, in their course, with so much regularity as to enable the people to repose as much confidence and hope in their coming and departure as they usually place in the ripening of their crops. The shoals of fishes are so dense as to cover the sea for leagues without interruption, and extend to a solid depth of many fathoms in some instances, so that they are taken as quickly as it is possible to salt and barrel them. The season lasts from a month to six weeks, when thousands of ships are laden with cargoes which are to serve as the common stock of food for many of the surrounding nations for twelve months, when the fishing is recommenced.

“ Such are the fisheries on the banks of Newfoundland, on the coasts of Norway, Sweden, and Great Britain; and unless the coasts of India

afford promise of resources of similar extent and importance, the object would hardly require much public attention. If, however, it be found that we have species on our coasts equal in every respect to that which is the object of enterprize at Newfoundland, and that these advance into the Sunderbuns at a season when ships and men without number may be employed with safety, there can be nothing to prevent the national importance of the circumstance.

“In this instance, as well as in that of the propagation of fresh-water species, science, while it exhibits varieties as numerous almost as the stars, teaches us at the same time how to strip the subject of vagueness arising from this cause, and amidst the countless species which inhabit our seas, directs our attention and our energies to a few only, and of these the *Sulea*, or *Polynemus sele*, Buch. is the one which from its bulk, its habits, and its qualities in every way seems capable of becoming a permanent benefit to society. It appears to be the Cod-fish of the tropics, and equals its representative in the northern seas in all those qualities which render that species so invaluable; but from its bulk it is unmanageable by the Indian fishermen, who are also without the means of preserving it.* These however are not sufficient reasons why an article that might add an exhaustless supply to the common stock of food should be altogether lost, now that an European spirit, under the influence of a paternal government, begins to infuse itself in all things connected with the resources of India. *As. Res. vol. 19. p. 457—464.*

* It must have been long known that the difficulty of preserving meat depends more on the state of the atmosphere in regard to electricity and moisture than on temperature. In Calcutta, in the month of December, when the mean temperature is about 60°, it is not uncommon to keep meat before it is dressed for eight days, though in England during the summer at the time of herring fishing too, it cannot be kept in the best meat-safes for more than half that time, though the temperature be lower than here. With salt and other means at hand, I conceive there would be no difficulty in curing fish in an Indian climate in the months of November and December, when the *Sulea* fishing would be carried on; nevertheless the subject is one of much interest, and I cannot therefore omit the following remark with which I have been favoured on this head by Mr. C. K. Robison, one of the Magistrates of Calcutta. “It would be a famous thing if these enormous fish (the *Sulea*) could be cured, as well as their isinglass obtained; and I cannot help thinking the measure very feasible, if the fishermen at the time of taking them and cutting them up, dipped them first into weak chloride of soda mixed with a small quantity of impure pyroligneous acid. This would not only preserve the fish till the salt acted, but improve the flavour.” These materials could be manufactured at a very cheap rate on the spot, as well as every thing else that would be requisite. For an account of the *Sulea* fish, see *Journal Asiatic Society Bengal*, March 1839, p. 203. Also an article on “some Indian Fishes by Dr. Cantor,” *Proceedings Royal Asiatic Society*, April 1838. *As. Res. vol. 19. p. 464.*

“*Cyprinidæ*, of all fishes of equal importance are those that appear to have occupied least, the attention of naturalists; a circumstance the more curious, as in consequence of their being peculiar to fresh waters, they are more universally distributed in the interior of continents, where they ought to be more familiar and useful to man than any other family of the same class.

“Regarding their distribution, little has hitherto been made known. It would not appear that there is any one species common to Europe and America; it is not however to be supposed that we are yet prepared to form an accurate comparison between the *Cyprinidæ* of the old and new worlds, since the majority of species in either seems as yet to be but ill defined. Nor is it to be supposed that ichthyology has yet been prosecuted in America to an extent at all likely to make us acquainted with the numerous species that must inhabit the extensive lakes and rivers of that continent. Of African species few only are referred to by Cuvier, while the Nile is known to present some species that are not found in the south of Europe. The Chinese species may yet be said to be almost unknown, with the exception of a few determined by Cuvier from the very doubtful data afforded by paintings; although it is seldom that so favourable an opportunity is afforded for collecting information on any branch of natural history, as that which the British embassies in China possessed, for investigating the peculiarities of the fresh-water fishes of that empire, from the length of time they passed in boats on some of the principal rivers. Nor is any thing whatever known, as far as I am aware, of the existence of Cyprins in New Holland or any of the Polynesian Islands. In India the fishes of several of the great rivers yet remain to be investigated, as those of the Irrawaddi, the Indus, and the Nerbudda. A collection of drawings of the fishes of the Indus, prepared during a scientific mission under Capt. Burnes, has recently been deposited in the museum of the Asiatic Society; and Mr. Griffith, to whom every branch of science is as dear as the one in which he is fast rising to the highest station, is now engaged in making extensive collections of, and observations on, the fishes of the same river. The museums of Paris must already be well stored with Indian species collected by Messrs. Duvaucel, Jaquemont, and De-Lessert, but I doubt if any of our British museums contain many of the commonest species of the Ganges.

“Natural history is now assuming a station so important in the highest scale of intellectual pursuits, that any remarks at all calculated to impress on the minds of those who are connected with missions into

new countries a lively sense of the interest that attaches to its most minute details, will not, we may be assured, be taken amiss. Information however carefully collected on such occasions as those referred to, becomes comparatively useless when unaccompanied with specimens of the things to which it relates. We should ever recollect that the easiest and best way to promote our own fame, and contribute at the same time to the advancement of natural history, is by making collections, nor are we without examples of the highest awards having been, though somewhat prematurely, conceded to collectors. Nevertheless, to render collections of the highest degree of real value in the present advanced state of science, those who make them should gather at the same time as much information as possible regarding the circumstances under which the various objects comprised in them live, or occur; and it is in this that the intelligence of the naturalist may be best and most profitably displayed during his journies in new countries.

“The following tabular view of the distribution of *Cyprinidæ*, though avowedly imperfect, will serve to show how the leading groups are generally dispersed. Cirrhins, for instance, appear to be peculiar to India, or at least to the tropical parts of Asia, and the Catastoms to America; while both are represented in Europe by the true Carps. From the number of Gangetic species, the Barbels like the Cirrhins would seem to have their metropolis in India, from whence the genus is extended over the Caspian Sea, and the Nile into Europe.

“The Gonorrhynchus would also seem, as a group, to be natives of the East, one species only having been found in South Africa, none in Europe, and eleven in India.

“The greater part of the *Sarcoborinæ* are probably also Eastern fishes, with the exception of the Breams and Lenciscs, although some of the European forms set down under the latter genera may be found to belong either to the Perilamps or Opsarions.

“The small sub-genera of *Pacilia* appear to be equally distributed in all parts of the world, one having been already found in Africa, two species in India, where a few more may be expected, seven species in America, and seven in Europe; but in every case the species of one continent have been found to be distinct from those of another.

“The Loaches (*Cobitis prop. Lin.*) afford another instance of the concentration of numerous species in India, while three only are found in Europe, and none whatever in America. The annexed table exhibits the general distribution of the family.

“GENERAL VIEW OF THE DISTRIBUTION OF CYPRINIDÆ

FAMILY.	SUB-FAM.	GENUS.	SUB-GEN.	ASIA.								
				EUROPE,	AMERICA,	INDIA,	CHINA,	CASPIAN,	AFRICA,	UNCERTAIN,	TOTAL.	
CYPRINIDÆ Cuv.	PÆONOMINÆ McClell.	Cirrhinus Cuv.		—	—	13	—	—	—	—	13	
		Labeo Cuv.		—	2	1	—	—	—	1	1	5
		Catastomus Leseur,		—	19	—	—	—	—	—	—	19
		Barbus Cuv.		4	—	11	—	—	2	1	—	18
		Oreinus McClell.		—	—	4	—	—	—	—	—	4
		Cyprinus prop. Cuv.		6	—	4?	4?	—	—	—	—	14?
	Gobio Cuv.		2	—	16	—	—	—	—	—	18	
	Tinca Cuv.		1	—	—	—	—	—	—	—	1	
	Gonorrhynchus Gron.		—	—	10	—	—	—	1	—	11	
	Systemus McClell.		—	—	12	—	—	—	—	—	12	
	Abramis Cuv.		5	1	1	—	—	—	—	—	7	
	Rhodeus Agass. } Fossil Genera in the lacustrine deposit Apius Agass. } of Oeningen.											
	Perilampus McClell.		—	—	12	—	—	—	—	—	12	
	Leuciscus Klein.		13?	4?	9	—	—	—	—	—	26	
	Opsarius McClell.		—	—	12	—	—	—	—	—	12	
PÆCILIA McClell.	PÆCILIA McClell.	Pæcilia prop. Schn.		4	—	—	—	—	—	—	4	
		Lebias Cuv.		1	—	3	—	—	—	—	4	
		Fundulus Lacép.		5?	2	—	—	—	—	—	7	
		Molinesia Leseur,		—	1	—	—	—	—	—	1	
		Cyprinodon Lacép.		2	4	—	—	—	—	—	6	
		Aplochelus McClell.		—	3	—	—	—	—	—	3	
APALOPTERINÆ McClell.	APALOPTERINÆ McClell.	Anebleps Bl.		—	—	—	—	—	1	—	1	
		Platycara McClell.		—	—	3	—	—	—	—	3	
		Psilorhynchus McClell.		—	—	2	—	—	—	—	2	
		Cobitis } Cobitis propria McCl.		2	—	12	—	—	—	—	15	
		Lin. } Schistura McClell.		—	—	11	—	—	—	—	11	
				42	37	139	4	2	4	1	229	

“The American species of this family referred to in the Regné Animal, only amount to thirty-three, but Dr. Richardson in his report on North American Zoology mentions nearly as many more, imperfectly indicated by Rafinesque Smaltz, and other writers as belonging to the rivers and lakes of the new world;* still however the preponderance of species in favour of India is so remarkable, that it is only by extending our consideration to other genera of the order *Malacopterygii abdominales* that we find the equilibrium restored in the distribution of fresh-water fishes. Thus the *Salmonidæ* which form a large proportion of that order in the rivers of both Europe and America, are in India quite unknown, not one species of that extensive family having

* I have not yet seen the volume of *Fauna Boreali Americana* by Dr. Richardson, which is devoted to Ichthyology, the volume on Birds being the only part of that important work which has reached India.

yet been found in this country, where the blank appears to be filled up by the excessive development of the *Cyprinidæ*.

“One species of Tench,* four Leuciscs,† and one Gudgeon,‡ are enumerated among the fossils of Æningen by M. Agassiz, who also describes two new genera || *Rhodeus* and *Apius*, nearly allied to, but distinct from the Perilamps and Systems. They are distinct from the first, by the dorsal and ventral margins being equally arched, and the caudal and anal fins being less developed; and from the second, by the absence of spines in either of the latter fins; both belong however to *Sarcoborinæ*, and will serve to render that group far more complete than it appeared to me to be before I saw M. Agassiz’s splendid work. Two fossil species of *Cobitinæ* are also found in the same locality, one of these, *C. cephalotus* Agass. belongs to *Schistura*. The marlstone in which these remains are found is justly considered by M. Agassiz to be a lacustrine deposit, and supposed to be coeval with the molasse of Switzerland and the sand stone of Fontainbleau, and consequently to correspond with the miocene or early tertiary period.” *Op. cit. p. 257—262.*

As a specimen of the manner in which the subject is treated we shall here give from the synopsis of his paper one of the three sub-families into which Mr. M’Clelland has separated the Cyprins; on a future occasion we may quote the two remaining sub-families, from the same part of the work. *p. 264—283.*

“1. SUB-FAM.—PÆONOMINÆ. § J. M.

“CHAR. Mouth slightly cleft, either horizontal or directed more or less downward. The stomach is a lengthened tube continuous with a long intestinal canal. Colours plain. Three rays in the branchial membrane.

“OBS. They occur only in fresh-water, and comprise a large proportion of the fishes of lakes and rivers, more especially those that are of economical importance. Their food consists chiefly of confervoid plants and other productions of the vegetable kingdom.

* *Tinca leptosoma*, Agass. *Recherches sur les Poissons Fossiles*, vol. v. t. 51.

† *Leuciscus papyraceus*, Agass. V. t. 36. *P. leptus*, Agass. V. t. 57. *L. pusillus*, id. l. c. *L. æningensis*, id. and *L. heterurus*, id. l. c.

‡ *Gobio analis*, Agass. t. 57.

|| *Rhodeus elongatus*, Agass. t. 54. and *R. latior*, id. l. c. Of the genus *Apius*, M. Agassiz describes *A. gracilis*, and *A. brongiarti*, V. t. 55.; but the latter as well as *Leuciscus papyraceus* are from the lignites of Mênat.

§ From *Poionomos*, that feeds on herbs.

" I. GEN.—CIRRHINUS.

" CHAR. Lower jaw composed of two short limbs loosely attached together in front, where instead of a prominent apex, there is a depression; lips soft and fleshy with four cirri,* dorsal without spinous rays.

" OBS. This genus would seem to be represented in America by the *Catastomi* of Leseur, and in Europe by *Cyprinus proprius*, Cuv. In India it affords several of the most favourite, abundant, and wholesome species.

Spec. C. macronotus, J. M. t. 41. f. 1.

Length of the head to that of the body as one to four; forty-one scales along the lateral line, and thirteen in an oblique line from the base of the ventrals to the dorsum. D.23 : P.16 : V.9 : A.7 : C. 19.

HAB. Assam and North-eastern parts of Bengal, where it attains from two to three feet in length.

Spec. C. nandina, Buch. P. G. † t. 8. f. 84.

Length of the head to that of the body as one to three; forty-four scales along the lateral line, and twelve in an oblique line from the base of the ventrals to the dorsum. D.26 : P.16 : V.9 : A.7 : C.19.

HAB. Bengal and Assam.

Spec. C. calbasu, Buch. P. G. t. 2. f. 33.

Length of the head to that of the body as one to four and a half; forty-two scales along the lateral line, and fourteen in an oblique line from the base of the ventrals to the dorsum. D.15 : P.17 : V.9, or 10 : A.8 : C. $\frac{10}{9}$.

Variet. Forty-two scales along the lateral line, and fifteen in an oblique line from the base of the ventrals to the dorsum. D.16 : P.15 : V.9 : A.5 : C. $\frac{9}{10}$

HAB. Bengal and Assam.

Spec. C. rohita, Buch. P. G. t. 36 f. 85.

Length of the head to that of the body somewhat less than one to three; forty-two scales along the lateral line, and twelve in an oblique line from the base of the ventrals to the dorsum. D.15 : P.16 : V.9 : A.7 : C. $\frac{10}{9}$.

Variet. † t. 41. f. 2. Forty-three scales along the lateral line, and thirteen in an oblique row from the base of the ventrals to the dorsum. D.15 : P.16 : V.9 : A.8 : C.20.

HAB. Bengal and Assam.

* I am not sure as to cirri forming any very valuable character of a natural genus. The length of the dorsal fin certainly does not; in the first species it is as long as in the Carp.

† P. G. These initials refer to Buchanan's work on Gangetic Fishes.

‡ This fish attains a large size in Assam, and is probably the true *Ruee* of the natives. That which is figured by Buchanan is as far as I have seen a small fish, though the larger kind which I have figured would seem to be the one he has described. This as well as the preceding species present so many varieties, probably the result of artificial means resorted to for their propagation, from their value as an article of food, that it is difficult to define their true characters.

Spec. C. gonius, Buch. P. G. t. 4. f. 82.

Scales minute; snout muscular and perforated by numerous mucous pores. D.15 : P.17 : V.9 : A.7 : C.19.

HAB. Bengal and Assam.

Spec. C. nancar, Buch. P. G. p. 299.

Sub-operculum rudimentary, and concealed beneath the integuments D.20 : P.18 : V.9 : A.8 : C.19.

HAB. North-eastern parts of Bengal.

“The following three species have a black spot at the base of the caudal, and the dark colour of the back descends in fasciated points on the sides, thus indicating a relation with the *Sarcoborinæ*; but until the nature of this relation be determined, and their habits and structure known, I place them with the Cirrhins. I only know them by Buchanan’s figures and descriptions.*

Spec. Cyp. morula, Buch. P. G. Pl. xviii, f. 91.

Length of the head equal to the altitude of the body, and to a fourth of the length; lips pendulous, the hinder fimbriated. D.13 : P.16 : V.9 : A.8 : C.19.

HAB. Ponds in Bengal.

Spec. Cyp. joalius, Buch. t. 42, f. 6. β †

Head large and very blunt, mouth low and horizontal. D.12 : P.—? V.9 : A.8 : C.—?

HAB. North-eastern parts of Bengal.

Spec. Cyp. dero, Buch. P. G. t. xxii. f. 78.

Only two cirri. Head oval and blunt, snout prominent and rough, lips smooth-edged. D.13 : P.18:—? V.9 : A.7 : C.19.

HAB. Bramaputra.

“SUB-GEN.—LABEO.

“CHAR. Structure and habits agree with those of the Cirrhins, but cirri are wanting, or very minute.

“OBS. The last species would seem to be a *Catostomus*, and the two first to be very nearly allied to each other, and to differ chiefly from *C. gonius*, Buch. in being without cirri. They correspond with the species named by Buchanan, *Cyp. curchius*, *C. cursa*, and *C. cursis*, but I cannot altogether reconcile them with his descriptions; they appear to me to be varieties resulting from domestication.

* To these may be added for the present *Cyp. pausio*, Buch. P. G. 317. t. 42 f. 4 β . It seems to differ from them merely in being without cirri.

† This sign β , denotes that the figure given is from Buchanan’s collection.

Spec. Cyp. curchius, Buch. t. 40. f. 3.

Scales minute and disposed so as to indicate longitudinal stripes, lips fleshy and fimbriated, seventy-eight scales along the lateral line, and thirty from the base of the ventrals to the dorsum. D.17: P.16: V.9: A.7: C. $\frac{10}{9}$.

HAB. Bengal and Assam.

Spec. Cyp. cursis,* Buch. t. 38. f. 3.

Snout thick and projecting, eighty-three scales on the lateral line, and about twenty-seven across the body from the base of the ventrals to the dorsum. D.16: P.17: V.9: A.7: C. $\frac{10}{9}$.

HAB. Assam and Bengal.

Variet. Cyp. cursa, Buch. t. 38. f. 2. β

Scales and fin rays the same as in *C. curchius*, but the back is more abruptly arched, and the abdominal margin is straight to the anal.

Spec. C. dyocheilus,† J. M. t. 37. f. 1.

Goreah of the Assamese.

Head long, opercular plates covered with thick integuments, snout muscular, forty-four scales along the lateral line, and thirteen in an oblique line from the base of the ventrals to the dorsum. D.12: P.18: V.9: A.8: C.19.

HAB. Assam, where it usually attains two feet and upwards in length.

“II. GEN.—BARBUS.

“CHAR. Lower jaw composed of two lengthened limbs, united in front so as to form a smooth narrow apex. Dorsal short preceded by a strong spine, lips hard, four cirri, intermaxillaries protractile.

“OBS. Species of this genus inhabit the Caspian Sea, the Nile, and several of the rivers of Europe, generally confined to clear water. The comparative shortness of the intestinal canal proves them to be less exclusively herbivorous than any other fishes of the same sub-family. The Indian species, indicated in the Regné Animal, all belong to other genera.

Spec. B. hexastichus,‡ J. M. t. 39. f. 2.

Cyp. tor, Buch. P. G. 305.

Lobura of the Assamese.

Length of the head to that of the body as two to seven, twenty-five scales along the lateral line, and six in an oblique row from the base of the ventrals to the dorsum. D.11: P.17: V.9: A.8: C.19.

HAB. Great rivers in the plains of India. Ordinary length from one and a half to three feet.

* This variety had been figured from a dried specimen and transferred to stone, before I found in Buchanan's collection a most excellent drawing of it.

† So called from the pendulous structure of the snout descending so as to form the appearance of a second lip.

‡ From the scales forming six rows along the sides.

Spec. B. progeneius,* J. M. t. 56. f. 3.

Cyp. tor, Buch. Coll.

Length of the head to that of the body as one to three, twenty-six scales along the lateral line, and six in an oblique row from the base of the ventrals to the dorsum, with a large cellular appendage to the apex of the lower jaw. D.12: P.16: V.9: A.7: C.19.

HAB. Great rivers in the plains of India. Ordinary length from $1\frac{1}{2}$ to 3 feet.

Spec. B. macrocephalus, J. M. t. 55. f. 2.

Bura hetea of the Assamese.

Length of the head to that of the body as two to five, twenty-seven scales along the lateral line, and six in an oblique line from the base of the ventrals to the dorsum. D.11: P.16: V.10: A.7: C.19.

HAB. Rapids in Upper Assam. Ordinary length from 2 to $3\frac{1}{2}$ feet.

Spec. B. hexagonolepis,† t. 41. f. 3.

Bokar of the Assamese.

Length of the head to that of the body as one to four, exposed surface of the scales hexagonal, twenty-seven scales along the lateral line, and seven in an oblique line from the base of the ventrals to the dorsum. D.12: P.16: V.9: A.7: C. $\frac{10}{9}$.

HAB. Upper Assam. Ordinary length from $1\frac{1}{2}$ to $2\frac{1}{2}$ feet.

Variet. Cyp. putitora, Buch.

Head small and blunt, with eleven rays in the dorsal, attaining occasionally nine feet in length.‡

Spec. B. megalepis,§ Hardw. Illust. t. 93.

Cyp. mosal, Buch.

Maháseer of the Hindus.

Body below uniformly arched at the insertion of the anal, length of the head to that of the body as one to three. D.13: P.17: V.9: A.7: C. $\frac{10}{9}$.

HAB. Northern parts of Bengal. Length occasionally four or five feet.

Spec. B. chelynooides, J. M. t. 57. f. 5. Jour. A. S. vii. t. 56. f. 5.

Head large, lips thick and smooth, thirty-three scales along the lateral line, and nine in an oblique line from the base of the ventrals to the dorsum. D.10: P.16: V.9: A.7: C.18.

HAB. Mountain streams at Simla. Usual size about six inches in length. Dr. Macleod's Coll.

* From $\Pi\rho\omicron\gamma\epsilon\nu\epsilon\iota\omicron\varsigma$, that has a prominent chin or long beard; in allusion to the singular appendage to the lower jaw of this species by which it may be easily recognized.

† In allusion to the form of the exposed portion of the scales.

‡ This fish I have been unable to identify with Buchanan's description, I may therefore have described it under another name; he says the head is blunt, oval, small, and smooth, which scarcely applies to either of the foregoing, in which the head is remarkably lengthened; that of *B. hexagonolepis* would come nearest to it, though some of the others seem to correspond more in other respects with the account given. Pisc. Gang. 303.

§ From *Mega* large, and *lepis* a scale.

“OBS. The following five species have the dorsal spine serrated behind. The first three are probably varieties of the same species.

Spec. Cyp. sarana. Buch. P. G. p. 307.

Cyp. kanta, id Coll.

Cyp. kunamo Russ?

Head blunt, oval, and small, with a small bone at either side of the upper lip, green above, below silvery, scales large. D.10 : P.16 : V.9 : A.8 : C.19.

HAB. Ponds and rivers in India. Rarely attaining two feet in length.

Spec. B. spilopholus,* J. M. t. 39. f. 4.

Head much compressed, cheeks and snout perforated with mucous pores, forty-eight scales along the lateral line, and seventeen in an oblique row from the base of the ventrals to the dorsum; each scale marked with a black spot at the base. D.11 : P.15 : V.9 : A.7 : C. $\frac{10}{9}$.

HAB. Northern parts of Bengal.

Variet. Cyp. chagunio, Buch. P. G.

Scales large and spotted at the base, head much compressed, with numerous prominent mucous pores on its fore part. D.12 : P.15 : V.10 : A.8 : C.19.

HAB. Northern parts of Bengal.

Spec. B. diliciosus, J. M. t. 39. f. 3.

Head short and blunt, thirty-four scales along the lateral line, eleven in an oblique line from the base of the ventrals to the dorsum, with a bright gold coloured spot on each operculum. D.12 : P.16 : V.9 : A.7 : C.19.

HAB. Assam. Ordinary size about 10 inches in length.

Spec. B. rododactylus,† J. M.

Fins red and orange, except the dorsal and upper lobe of the caudal, ten rays in the dorsal.

HAB. Lower Assam. Usual size about 5 inches in length.

“SUB-GEN.—OREINUS,‡ J. M.—MOUNTAIN BARBELS.

“CHAR. Head fleshy, mouth vertical, lower jaw shorter than the upper, snout muscular and projecting, furnished with cirri, dorsal preceded by a serrated spinous ray, scales small.

“OBS. Intestinal canal and stomach form a tube equal to about four or five lengths of the body, including the head and caudal.

* From *spilota* a spot, and *pholis* a scale.

† *Rododaktylos*, literally rosy-fingered, in allusion to its red fins.

‡ From *Oreinos*, pertaining to mountains. This genus has been since published by M. Von Heckel a German naturalist, from the collections taken home to Europe by Baron Hugel on which Mr. McClelland observes page 455 “that it would really seem as if we intended to leave all that requires either intellect or observation to discover in the productions of India to our neighbours on the continent, &c. &c. To be fairly rivalled in any pursuits where facilities are equal between the parties would be bad enough, but to be indebted to strangers for a knowledge of the productions of our own country argues a fault somewhere, but where that fault lies it might be a delicate question to enquire, as none of us I fear, would be altogether free from a share of the reproach.”

Spec. O. guttatus, J. M. t. 39. f. 1.

Head covered with thick integuments, branchial apertures small, sides and fins irregularly marked with brown spots, scales minute. D.10: P.17: V.11: A.10: C.20.

HAB. Mountain streams in Boutan, at an elevation of about 5000 feet, where it was found by Mr. Griffith.

Spec. Cyprinus Richardsonii, Gray. Hardw. Illust. t. 94. f. 2.

About eleven rays in the dorsal, and nine in the anal, back speckled with minute dots.*

Spec. O. maculatus. J. M. t. 57. f. 6. Journ. A. S. vii. t. 56. f. 6.

Mouth situated on the lower surface of the head, small shapeless spots irregularly distributed over the body, but not on the fins, scales minute. D.11: P.18: V.10: A.5: C.19.

HAB. Mountain streams at Simla, elevated between 5000 and 6000 feet, where it was found by Dr. Macleod.

Spec. O. progastus, † J. M. t. 40. f. 4. Adoee of the Assamese.

Muzzle fleshy and pointed, lips thick, somewhat pendulous and muscular, abdomen very prominent beneath the pectorals. D.12: P.13: V. 10: A.7: C.19.

HAB. Rapids in Upper Assam, where it occasionally attains 18 inches in length, but its flesh is believed to produce vertigo and other alarming effects on those who use it.

“ III. GEN.—CYPRINUS PROPRIUS.

“ CHAR. Body elevated, lower jaw short and rounded in front, lips hard, thick, and without cirri; dorsal long. Dorsal and anal usually preceded by spinous rays.

“ OBS. Only two species of this group have been as yet found in India, and one of these is without the dorsal and anal spinous rays. †

Spec. C. semiplotus, J. M. t. 37. f. 2. Sentooree of the Assamese.

Head slightly depressed, with a single row of large mucous pores extending horizontally in front of the snout, back gibbous, thirty-two scales along the lateral line, and ten in an oblique row from the base of the ventrals to the dorsum. D.27: P.16: V.9: A.9: C.19.

HAB. The rapids of the Bramaputra in Upper Assam. Usual size 1 foot to 1½ in length.

* This may probably prove to be *O. guttatus*.

† Προγαστως, that has a prominent belly.

‡ They have little affinity to each other; in *C. semiplotus*, the head is small and fleshy, so as to conceal the opercular plates, and in *C. catla*, it is large with naked opercula.

Spec. C. catla, Buch. P. G. t. xiii. f. 81.

Head large, forty-four scales along the lateral line, and fourteen in an oblique row from the base of the ventrals to the dorsum. Dorsal and anal without spinous rays. D.18 : P.18 : V.9 : A.8 : C.19.

HAB. Fresh-water rivers and ponds in Bengal and Assam. Ordinary size from 1½ to 3 feet in length, but occasionally it is found twice that size.

“IV. GEN.—GOBIO.

“CHAR. The dorsal is placed over the ventrals, and like the anal is short and without spines, lower jaw shorter than the upper, and is either round or square in front, lips thin and hard, snout prominent.

“OBS. The Gudgeons thus defined are a very natural group, remarkable for the extraordinary length of the abdominal canal. One of the only two indicated by Cuvier from Buchanan’s species, is an *Opsarion*, a genus no less remarkable for the shortness of the abdominal canal than the Gudgeons are for its length; but as the distinctions on which the subdivisions of the family are here made, have not before been observed, we cannot be surprised, that it should be repeated in the last edition of the *Regné Animal* from Linnæus, that the stomach of *Cyprinidæ* “is continuous with a short intestine.” The following five species have each two cirri.

Spec. Cyp. mrigala, Buch. t. 38. f. 1. P. G. t. 6. f. 7.

Length of the head to that of the body as one to four and a half, depth of the body about one-fourth of the length, forty-four scales along the lateral line, and fourteen in an oblique line from the base of the ventrals to the dorsum. D.16 : P.17 : V.9 : A.8 : C.19

HAB. Rivers and ponds throughout Bengal and Assam. Ordinary length two feet.

Variet. Rewah of the Natives, t. 58. f. 1.

Head less compressed than the body, upper jaw somewhat prominent, forty-three scales on the lateral line and thirteen in an oblique line from the base of the ventrals to the dorsum. D.15 : P.16 : V.9 : A.8 : C.19.

HAB. Ponds in the vicinity of Calcutta. Length from 6 to 12 inches.

Spec. Cyp. curmuca, Buch. Jour. Mys. III. t. 30.

Snout prominent and furnished with tubercles or mucous pores, lips smooth, and on each there is a small bone. D.11 : P.16 : V.9 : A.8 : C.18.

HAB. Rivers in Southern India, where it occasionally reaches three feet in length.

Spec. Cyp. reba, Buch. P. G. p. 280.

Head blunt, mouth small and directed downwards, lips soft. D.11 : P.17 : V.9 : A.8 : C.19.

HAB. Northern parts of Bengal and Behar, where it attains two feet in length.

Spec. Cyp. acra, Buch. P. G. p. 284.

Cyp. angra, id. Coll.

Cyp. Hamiltonii, Gray, Hardw. Illust. t. 86. f. 1.

Lasseem of the Assamese.

Snout prominent and fleshy, thirty-five scales along the lateral line, and fourteen in an oblique line from the base of the ventrals to the dorsum.

D.10 : P.10 : V.9 : A.8 : C.19.*

HAB. Bramaputra.

Spec. G. lissorhynchus.† J. M. t. 55. f. 5.

Snout smooth and blunt without cirri, thirty-nine scales along the lateral line, and thirteen from the base of the ventrals to the dorsum. D.11 : P.16 :

V.9 : A.8 : C.19.

HAB. Large Rivers of Bengal and Assam. Usual length 6 to 9 inches.

“ In the six following species the scales are thin and rough, and generally placed so that each scale is in the axis of the one immediately preceding or succeeding, and not in regular oblique rows as is usual in the family ; but this peculiarity is not so well marked in some species as in others. They are all without cirri.

Spec. Cyp. bangon, Buch. Coll. t. 58. f. 2.β

Cyp. cura, id. P. G. p. 384.

Snout smooth without cirri, scales in parallel rows with a grey line between each row. D.12 : P.15 : V.9 : A.7 : C. $\frac{10}{9}$.

HAB. Bengal, where it attains a size of eight or ten inches.

Spec. Cyp. boga, Buch. P. G. t. 28. f. 80.

Snout perforated with numerous mucous pores, lower lip fimbriated, scales raised on either side of the base of the dorsal, lobes of the caudal slightly divided. D.12 : P.—V.9 : A.8 : C.—

HAB. Bramaputra. Usual length about nine inches.

Spec. G. bicolor, J. M. t. 40. f. 1.

Snout smooth, long, and rather pointed, lower jaw shorter than the upper, forty-two scales on the lateral line, thirteen in an oblique row from the base of the ventrals to the dorsum. Blue above, beneath silvery, pectorals small.

D.12 : P.16 : V.9 : A.7 : C.19.

HAB. Rivers on the northern side of Assam. Griff. Coll.

Spec. G. anisurus,‡ J. M. t. 40. f. 2.

Snout blunt, lower jaw shorter than the upper, lips hard and smooth, thirty-nine scales along the lateral line, and thirteen in an oblique row from the base of the ventrals to the dorsum, lower lobe of the caudal longer than the upper. D.12 : P.17 : V.9 : A.7 : C. $\frac{9}{10}$.

HAB. Upper Assam. Griff. Coll.

* Buchanan gives the fin rays as D.11 : P.18 or 19 : V.9 : A.8 : C.19.

† From *lissor* smooth, and *rhynchus* the snout.

‡ From *anisos* unequal, and *oura* a tail.

Variet. Cyp. bata, Buch. P. G. p. 383.

Upper lobe of the caudal longer than the lower, with an ill defined transverse bar, ventrals smaller than the pectorals. D.12: P.17: V.9: A.8: C.19.

HAB. Rivers and ponds in Bengal, where it attains a foot in length.

Spec. G. limnophilus,* J. M. t. 55. f. 3.

Scales in parallel rows, thirty-six in each row, and twelve across the body. D.10: P.19: V.9: A.7: C.19.

HAB. Ponds in Bengal. Length 12½ inches.

“In the remaining species the scales are as usual in oblique rows.

Spec. Cyp. pungusia, Buch. t. 42. f.1. β†

Snout fleshy, porous, and prominent, forty-one scales along the lateral line, and fifteen across the body; lips fimbriated. D.14: P.18: V.9: A.7: C.19.

HAB. Bengal, where it attains a span in length.

Spec. Cyp. ariza, Buch. Jour. Mys. III. t. 31.

Snout and under lip smooth, twelve rays in the dorsal; in other respects it resembles the last.

Spec. G. ricnorhynchus, J. M. t. 55. f. 1.

Snout thick and wrinkled, forty-three scales along the lateral line, and ten across the body from the base of the ventrals to the dorsum. D.12: P.17: V.9: A.7: C.19.

HAB. Northern parts of Bengal, here it was found by Mr. Hodgson.

Spec. G. malacostomus, ‡ J. M.

C. falcata, Gray Hardw. Illust. t.—?§

Nepura of the Assamese.

Snout thick, fleshy, and perforated with numerous large mucous pores, margins of the lips double and fimbriated. D.12: P.16: V.9: A.8: C.19.

HAB. Rapids in Upper Assam. Length from six to twelve inches. Mr. Griffith's Coll.

“ V. GEN.—GONORHYNCHUS.

“CHAR. Mouth situated under the head, which is long and covered with thick integuments, body long and sub-cylindrical, snout perforated by numerous mucous pores, dorsal and anal short, opposite, and without spines. The intestine and stomach form a continuous tube about eight lengths of the body.

* From *Λιμνη* a swamp or lake, and *φιλος* to love or frequent.

† Its form is not so slender as represented in the figure. Buchanan also gives seventeen rays to each pectoral, and eight to the anal.

‡ From *μαλακος* soft, and *στομα* the mouth.

§ This plate is not numbered in Hardwicke's Illustrations, nor is it included in the list of plates prefixed to the volume.

“OBS. This genus hitherto rested on a single species long since found at the Cape of Good Hope, but the *Garræ* of Buchanan chiefly belong to it, as well as several species which have since been found in India.

“The first three species are without cirri.

Spec. G. gobioides, J. M. t. 43. f. 1. *Herilwa* of the Assamese.

Altitude of the body to its length as one to four, thirty-seven scales along the lateral line, and nine in an oblique row from the base of the ventrals to the dorsum. D.10: P.15: V.9: A.7: C.19.

HAB. Bramaputra, in Assam. Length about a span.

Spec. G. petrophilus, J. M. Jour. Asiat. Soc. iv. t. 1.

Scales very minute, body and head long, eight rays in the dorsal.*

Spec. G. rupicolus, J. M. t. 43. f. 4, 5.

Snout thick and smooth, pectorals rounded;† fins short, and the membrane in which their rays are enclosed thick and opaque; thirty-five scales along the lateral line, and nine in an oblique row across the body. D.8: P.10: V.9: A.6: C.20.

HAB. Mishmee mountains. Length about two inches. Griffith's Coll.

Spec. G. bimaculatus, J. M.

Snout warty, porous, and divided by a fissure, without cirri; a black spot at the base of the caudal, lower lobe of the caudal longer than the upper, thirty-four scales along the lateral line and eight rows between the ventrals, and dorsum; pectorals and ventrals lanceolate. D.9: P.13: V.9: A.7:

C. $\frac{9}{10}$.

HAB. River Laech at the foot of the Mishmee mountains, where it was found by Mr. Griffith.‡

Spec. Cyp. lamta, Buch. t. 43. f. 2. β P. G. p. 343.

Cyp. godiyava, id. Coll.

Four very short cirri, pectorals and ventrals lanceolate, and a black spot on either side of the tail, snout thick and warty. D.10: P.13: V.9: A.7: C.19.

HAB. Northern parts of Bengal, where it attains $2\frac{1}{2}$ or three inches in length.

Spec. G. gotyla, Gray, Hardw. Illust. t. 88. f. 3.

Snout thick, and divided by a deep transverse fissure in which numerous large mucous pores are situated, a fleshy pendulous point at each corner of the mouth; four minute cirri.

HAB. Mountains of India.

* The habits of this species are fully described, but we want to know more of its specific characters.

† The form of the pectorals is not accurately represented in the figure.

‡ Also at the foot of the Nipal mountains, where Mr. Hodgson appears to have found a specimen now in the Asiatic Society's collection. In this, however, the lobes of the caudal are of equal length. It is so like the succeeding variety that I have thought it unnecessary to figure it separately.

Spec. G. fimbriatus, t. 43. f. 3. β

Cyp. sada, Buch. P. G.

Four cirri little shorter than the head, pectorals and ventrals falcate.
D.10: P.—? V.9: A.7.

HAB. Northern parts of Bengal, where it attains a few inches in length.

“The remaining three have each two small cirri.

Spec. G. macrosomus,* t. 43. f. 7. β

Cyp. latus, Buch P. G. p. 346.

Depth of the body to the entire as one to six, two cirri, scales small,
D.11: P.13: V.9: A.7: C.20.

HAB. Northern parts of Bengal.

Spec. Cyp. gohama, Buch. P. G. p. 346. t. 43. f. 6. β

Cyp. dyangra. id. Coll.

Is shorter in proportion, and more arched above and below than the former, and has eight rays in the anal.

HAB. Northern parts of Bengal.

Spec. G. brachypterus, J. M.

Lower surface of the head flat with a cartilaginous zone behind the mouth like *G. rupiculus*,† a few irregular pores on the snout, thirty-six scales on the lateral line and seven rows across the body.

HAB. Mishmee mountains. Griff. Coll.”

[A coloured drawing of each species is given, together with a detailed account of whatever is known regarding it.]

ART. IV.—*Account of a Journey from Sumbulpûr to Mednipûr, through the Forests of Orissa.* By LIEUT. M. KITTOE.

(Concluded from page 606.)

I marched from Mednipûr about the middle of December of the past year, and proceeded by the regular dawk stages as far as Doodkhundi a small village beyond Ghooteah, distant thirty-six miles. From this place I left the road and proceeded to Gopibullubpûr, a town on the right bank of the Subunreeka river and about eight miles due south.

On first leaving Mednipûr the Cossai river is crossed (forded) and the high iron-stone formation (at the extremity of which the town stands) is quitted. The road (if it deserves such a name) passes over low land as far as the second dawk station called Chardeh, a little beyond this the iron-stone is again met with, and forms the southern limit of the level valley of the Cossai, which is throughout highly cultivated

* From *Μακρος* long, *σωμα* the body.

† It also agrees with that species in the form of its fins; the presence of two very minute cirri being my chief reason for separating them, I have not thought it necessary to give a figure.